Patent claims

1. A method for producing a fibrous nonwoven, said method comprising depositing at least one short fiber-including layer by an airlaid process, wherein at least a fraction of the short fibers is provided with a finish in an amount of more than 0.035 percent by weight, based on the fiber weight of the short fibers provided with said finish.

2. The method according to claim 1, wherein the layer comprises short fibers in an amount of 70 to 99 percent by weight and binder material in an amount of 1 to 30 percent by weight, based on the total weight of short fibers and binder material.

3. The method according to claim 2, wherein the binder material comprises short binder fibers.

4. The method according to claim 3, wherein the short binder fibers are multi-component fibers.

5. The method according to claim 4, wherein the short binder fibers are bi-component fibers comprising a polyester core and a polyethylene sheath.

6. The method according to one of claims 2 to 5, wherein the short binder fibers have a length-to weight ratio of 1.0 to 6.0 dtex.

7. The method according to one of the preceding claims, wherein the short fibers have a moisture in the range of from 4 to 16%.

8. The method according to one of the preceding claims wherein the short fibers comprise short cellulose fibers, short cotton fibers, cellulosic man-made fibers, short synthetic fibers or a combination thereof.

9. The method according to claim 8, wherein the short fibers comprise short viscose fibers and at least a fraction of the short viscose fibers is provided with the finish.

10. The method according to claim 9, wherein at least a fraction of the short viscose fibers has a multi-limbed cross-section.

11. The method according to claim 10, wherein the multi-limbed cross-section is a three-limbed cross-section.

12. The method according to one of claims 9 to 11, wherein the short fibers comprise the viscose fibers in an amount of more than 85 percent by weight, based on the total weigh of the short fibers.

13. The method according to one of the preceding claims, wherein the short fibers have a length in the range of from 4 to 8 mm.

14. The method according to one of the preceding claims, wherein the short fibers have a length-to-weight ratio of 1.0 to 6.0 dtex.

15. The method according to one of the preceding claims, wherein the layer further comprises superabsorbent material.

16. The method according to one of the preceding claims, wherein the finish is selected from

(a) ester derivatives and ether derivatives of polyethylene oxide and polypropylene oxide of the general formula:

$$R1-(CO)_o-O-[-CH_2-(CH_2)_m-O-]_n-(CO)_p-R1$$

wherein R1 is, in each case independently of each other, a saturated or unsaturated hydrocarbon moiety having 12 to 22 carbon atoms, particularly 14 to 20 carbon atoms, which moiety may contain one or more free hydroxyl groups, o and p are independently of each other 0 or 1, m is 0 or 1, and n is 1 to 15, preferably 3 to 11, particularly 4 to 7,

(b) mono-, di- and triesters of sorbitanes with fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(c) mono-, di-, and triglycerides of fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(d) imidazolinium ethosulfates and methosulfates

(e) ethoxylated and propoxylated derivatives of the compounds according to (a), (b), (c) and (d), and

(f) mixtures of compounds according to (a), (b), (c), (d) or/and (e).

17. The method according to one of the preceding claims, wherein the at least one short fiber-including layer is deposited on a fibrous sheet.

18. The method according to claim 17, wherein the fibrous sheet is a short fiber-including layer which has been deposited by an airlaid process.

19. The method according to one of the preceding claims, comprising depositing two or three short fiber-including layers.

20. A fibrous nonwoven comprising at least one short fiber-including layer, wherein at least a fraction of the short fibers is provided with a finish in an amount of more than 0.035 percent by weight, based on the fiber weight of the short fibers provided with the finish.

21. The fibrous nonwoven according to claim 20, wherein the layer comprises short fibers in an amount of 70 to 99 percent by weight and binder material in an amount of 1 to 30 percent by weight, based on the total weight of short fibers and binder material.

22. The fibrous nonwoven according to claim 21, wherein the binder material comprises short binder fibers.

23. The fibrous nonwoven according to claim 22, wherein the short binder fibers are multi-component fibers.

24. The fibrous nonwoven according to claim 23, wherein the short binder fibers are two-component fibers comprising a polyester core and a polyethylene sheath.

25. The fibrous nonwoven according to one of claims 22 to 24, wherein the short binder fibers have a length-to-weight ratio of 1.0 to 6.0 dtex.

26. The fibrous nonwoven according to one of claims 20 to 25, wherein the short fibers comprise short cellulose fibers, short cotton fibers, cellulosic man-made fibers, short synthetic fibers or a combination thereof.

27. The fibrous nonwoven according to claim 26, wherein the short fibers comprise short viscose fibers and the viscose fibers are provided with the finish.

28. The fibrous nonwoven according to claim 27, wherein at least a fraction of the short viscose fibers has a multi-limbed cross-section.

29. The fibrous nonwoven according to claim 28, wherein the multi-limbed cross-section is a three-limbed cross-section.

30. The fibrous nonwoven according to one of claims 27 to 29, wherein the short fibers comprise the viscose fibers in an amount of more than 85 percent by weight, based on the total weight of the short fibers.

31. The fibrous nonwoven according to one of claims 20 to 30, wherein the short fibers have a length in the range of from 4-8 mm.

32. The fibrous nonwoven according to one of claims 20 to 31, wherein the short fibers have a length-to-weight ratio of 1.0 to 6.0 dtex.

33. The fibrous nonwoven according to one of claims 20 to 32, wherein the layer further comprises superabsorbent material.

34. The fibrous nonwoven according to one of claims 20 to 33, wherein the finish is selected from

(a) ester derivatives and ether derivatives of polyethylene oxide and polypropylene oxide of the general formula:

$$R1-(CO)_o-O-[-CH_2-(CH_2)_m-O-]_n-(CO)_p-R1$$

wherein R1 is, in each case independently of each other, a saturated or unsaturated hydrocarbon moiety having 12 to 22 carbon atoms, particularly 14 to 20 carbon atoms, which moiety may contain one or more free hydroxyl groups, o and p are independently of each other 0 or 1, m is 0 or 1, and n is 1 to 15, preferably 3 to 11, particularly 4 to 7,

(b) mono-, di- and triesters of sorbitanes with fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(c) mono-, di-, and triglycerides of fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(d) imidazolinium ethosulfates and methosulfates

(e) ethoxylated and propoxylated derivatives of the compounds according to (a), (b), (c) and (d), and

(f) mixtures of compounds according to (a), (b), (c), (d) or/and (e).

35. A multi-layer fibrous nonwoven, comprising at least one layer of a fibrous nonwoven according to one of claims 20 to 34.

36. A short fiber provided with a finish in an amount of more than 0.035 percent by weight, based on the fiber weight.

37. The short fiber according to claim 36, wherein the short fiber is a viscose fiber.

38. The short fiber according to claim 37, wherein the short fiber has a multi-limbed cross-section.

39. The short fiber according to one of claims 36 to 38, wherein the length-to weight ratio is 1.0 to 6.0 dtex.

40. The short fiber according to one of claims 36 to 39, wherein the finish is selected from

(a) ester derivatives and ether derivatives of polyethylene oxide and polypropylene oxide of the general formula:

$$R1\text{-}(CO)_o\text{-}O\text{-}[\text{-}CH_2\text{-}(CH_2)_m\text{-}O\text{-}]_n\text{-}(CO)_p\text{-}R1$$

wherein R1 is, in each case independently of each other, a saturated or unsaturated hydrocarbon moiety having 12 to 22 carbon atoms, particularly 14 to 20 carbon atoms, which moiety may contain one or more free hydroxyl groups, o and p are

independently of each other 0 or 1, m is 0 or 1, and n is 1 to 15, preferably 3 to 11, particularly 4 to 7,

(b) mono-, di- and triesters of sorbitanes with fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(c) mono-, di-, and triglycerides of fatty acids of the formula R1-COOH, wherein R1 is, in each case independently of each other, as defined above,

(d) imidazolinium ethosulfates and methosulfates

(e) ethoxylated and propoxylated derivatives of the compounds according to (a), (b), (c) and (d), and

(f) mixtures of compounds according to (a), (b), (c), (d) or/and (e).

41. Use of a short fiber according to one of claims 36 to 40 in an airlaid process.

42. An absorbent article, comprising a fibrous nonwoven according to one of claims 20 to 35, having an absorbent capacity of at least 3 g/g fibrous nonwoven.

43. The absorbent article according to claim 42, wherein the article is a hygienic article.

44. The absorbent article according to claim 43, wherein the hygienic article is a tampon, a sanitary napkin, a diaper or an incontinence article.

45. The absorbent article according to claim 42, wherein the article is a household article, an industrial article or a medical article.